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PULSE PRESSURE AND BODY MASS INDEX RELATION TO READMISSION OF PATIENTS WITH PAROXYSMAL ATRIAL FIBRILLATION

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Relevance. Arterial hypertension is a prevalent cause of atrial fibrillation (AF). It is well established that its association with enhanced weight may provoke an increase of AF risk, followed by the worsening of survival. Obesity was also recently identified as a strong predictor of cardiovascular morbidity in terms of its pro-inflammatory response and promotion of atherosclerosis. Identifying simple, non-invasive markers such as pulse pressure and body mass index (BMI) may improve early risk stratification. High pulse pressure reflects arterial stiffness, while increased body weight has been linked to adverse cardiovascular remodelling. Understanding their combined role may enhance clinical assessment of AF risk.

Aim: to evaluate the impact of pulse pressure value and severity of obesity on 1-year freedom from repeat episodes of AF patients' admissions.

Materials and methods. The analysis retrospectively included a total of 46 patients with various forms of AF. The paroxysmal form of AF was referred in 33 (72%) patients. Pulse pressure (PP) was calculated as the difference between systolic and diastolic blood pressure, with high pulse pressure defined as ≥60 mm Hg. Based on PP, patients were divided into two groups: group 1 - PP < 60 mm Hg (24 patients) and group 2 - PP > 60 mm Hg (22 patients). Groups were comparable in age, gender, treatment of AF, and rate of permanent AF but different in weight (71.7 vs 75.8 kg, p=0.004), BMI (24.8 vs 25.9, p<0.000). The student t-test was used for parametric variabilities, and the Fisher test was used for non-parametric and categorical parameters. Data are presented as a mean.

Results and their discussion. Patients of groups were further divided into 4 subgroups: subgroup 1A with low PP and low BMI (<28) (p=0.0019) had higher incidents of repeat AF episodes compared to subgroup 2B with high PP and high BMI (≥28) (p=0.0035); and compared to subgroup 2A with high PP and low BMI. According to findings, the combination of low PP and low BMI is associated with a double risk of hospital readmission with paroxysmal AF.

Conclusions. There is higher readmission in patients with low pp/low BMI. It can be explained by higher arterial stiffness that narrows rather than widens pulse pressure, compounded by the haemodynamic vulnerability of low body weight. The non-significant subgroups B and C indicate that once obesity is present, PP loses its predictive value, likely because other factors, such as adipose tissue inflammation, atrial remodelling, and comorbidities, become the dominant drivers.